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ABSTRACT

The study reported in this paper emerged from a concern that, despite twenty years of theorizing about the practice of environmental education in Australian schools, it continues to be marginalized in the school curriculum. The educational problem to be solved was how to improve the teaching and learning of environmental education in schools and the broader community in Australia. The aims of environmental education are well documented, and there is little doubt that educators would agree that environmental education in schools is an important strategy in achieving environmental improvement. Numerous curriculum programs have been developed to assist teachers in the implementation of environmental education in their classrooms. However, little is known about the environmental understandings held by children. Currently, environmental programs are being developed based on assumptions of what children know and what they believe. Clearly, more effective programs could be developed if children's environmental understandings and beliefs were known. This paper reports on research in progress. A research instrument was developed from qualitative data. This instrument in the form of a survey was completed by 2,249 students in Years 3, 6, 8, and 11 across New South Wales. (Contains 10 references.) (Author/MM)

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The Social Cultural Influences on Environmental Understandings of NSW School Students. The First Line of Analysis.

Paper presented at AARE Sydney University December 7, 2000.

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Abstract

The study reported in this paper emerged from a concern that despite twenty years of theorising about the practice of environmental education in Australian schools it continues to be marginalised in the school curriculum. The educational problem we set out to solve was how to improve the teaching and learning of environmental education in schools and the broader community in Australia.

The aims of environmental education are well documented and there is little doubt that environmental educators would agree that environmental education in schools is an important strategy in achieving environmental improvement. Numerous curriculum programs have been developed to assist teachers in the implementation of environmental education in their classrooms. However, little is known about the environmental understandings held by children. Currently environmental programs are being developed based on assumptions of what children know and what they believe. Clearly, more effective programs could be developed if children's environmental understandings and beliefs were known.

This paper reports on research in progress. A research instrument was developed from qualitative data. This instrument in the form of a survey was completed by 2 249 students in Years 3,6,8 and 11 across New South Wales.

Background

Over the past three decades, community understanding of the scope and nature of environmental problems has expanded. More integrated approaches to environmental management have been developed, recognising that environmental problems arise from how we relate to the biophysical world. The fundamental causes of environmental problems cannot be solved simply by applying technological or "command and control" solutions. Effective, long-term solutions need an integrated approach which includes economic, social, regulatory and ecological aspects. Resolving environmental issues requires active involvement by the whole community.

Education has become an essential strategy for governments, the UN, and many local and international non-government groups and organisations in protecting the environment (see, for example, NSW Department of School Education, 1989; NSW Department of School Education, 1993; World Commission on Environment and Development, 1987).

Environmental education encompasses a diverse range of programs and providers which, combined, support community participation in environment protection; and, through theoretical developments and practical participation, there is now an extensive body of knowledge about what constitutes effective environmental education. This theoretical development has included environmental education researchers such as Hungerford and Volk (1990) from US, Robottom (1987), Fien (1992), , N. Gough (1991) and Walker (1996) from Australia and Scott et al (1998) from Europe.

As governments around the world have sought to develop more comprehensive and integrated approaches to environment protection, they have established policies and mechanisms for supporting environmental education. There have been a number of landmark intergovernmental agreements in the field since the 1970s (see, for example, IUCN, 1970; IUCN, 1980; IUCN, UNEP, WWF 1991; UNESCO, 1977; UNESCO-UNEP 1978; UNCED, 1992). At the same time, different models and varieties of

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environmental education have developed in association with our evolving conceptions of environmental problems.

In this paper we argue that despite twenty years of theorising about the practice of environmental education in Australian schools it continues to be marginalised in the school curriculum. The educational problem we set out to solve was how to improve the teaching and learning of environmental education in schools and the broader community in Australia.

A Collaborative Project

The study is being conducted in conjunction with key providers of environmental education in NSW and who clearly have an interest in the outcomes of the study. The partners are the Environment Protection Authority (EPA), the Department of Education and Training (DET), the Powerhouse Museum, National Parks and Wildlife Service (NPWS) and the Department of Land and Water Conservation (DLWC). All the partners develop environmental programs for schools and the wider community.

The NSW EPA has contributed to research and program development that supports ecologically sustainable development in schools. These reforms include the recently released Green Paper, A New Approach to Environmental Education in NSW (EPA, 1996). The EPA has also recognised the need to have a better understanding of the environmental knowledge, skills, attitudes and values of the community in order to develop strategies to solve environmental problems. Who Cares About the Environment, A Benchmark Survey of the Environmental Knowledge, Attitudes, Skills and Behaviour of the People of NSW (EPA, 1994), for example, consisted of a large social research project which investigated the environmental understandings of the adult population in NSW. Policies and programs have resulted from this research.

In other agencies responsible for the production of curriculum documents, policy statements and resource packages, these have not been based on the environmental understandings of young people. The proliferation of policies, programs and materials aimed at young people becoming environmentally competent citizens are based on assumptions of what young people need to know, how they learn and where they learn.

The study builds on research conducted by in which the researchers investigated the beliefs, knowledge, education and influences of secondary school students in Brisbane and Melbourne. It also builds on the work of Gambro & Harvey (1996) in the US, Szagun & Mesenholl (1993) in West Germany, Wals (1994) in the Netherlands, Yeung (1998) in Hong Kong and Glazar, Vrtacnik & Bacnik (1998) in Slovenia.

The current study specifically targets populations and research questions not covered in the Brisbane-Melbourne project. The aim here will be to target:

- age groupings including early childhood, primary and secondary students in order to identify the development of attitudes, knowledge, skills and values;
- students where English is their second language;
- youth sub-cultural groups;
- socio-economic groupings;
- gender;
- rural/urban groups;
- family groups.

The Study

The project is designed to determine the environmental knowledge, attitudes, values, skills and behaviours of NSW school age children. It targets a range of age groups, youth sub-cultural groups, socio-economic groups, students for whom English is the second language, gender and rural/urban groups to obtain data that will help guide the development of policy, curriculum and support programs in environmental education.

The project has two parts. Part I is the School Study and involves two phases. The first phase consisted of a series of focus groups (Year 3, 6, 8 and 11 school students and teachers). Qualitative data was gathered from these groups in order to determine the nature and framework of the survey instrument. The survey instrument was piloted early in 2000.

The second phase of Part 1 of the project involved gathering quantitative data using the survey instrument developed from the data gathered in the first phase. This quantitative data will be supplemented by qualitative data obtained from case studies early in 2001.

Part II of the project is a Community Study. Data from the School Study will inform the Community Study. This part of the project is a qualitative study that will focus on the influence of parent and community groups in the formation of environmental awareness of students. It is a discrete project but one which is informed by the School Study. Together the two studies will provide a holistic explanation for the environmental understandings of school age students. The influence of parents and the

broader community is clearly an important factor in the determination of school students' environmental awareness. However, there is a paucity of research that has investigated parental and community influence on the environmental awareness of the student cultural groups nominated in this research.

Aims of the study

The aims of the study are:

- To acquire information about the environmental knowledge, attitudes, values, skills and behaviours of NSW school age children;
- To explore influences on the development of environmental awareness of young people specifically in relation to ESL students, youth sub-cultures, gender and socio-economic, rural and urban factors, and family influences;
- To provide data which will provide a benchmark for tracking social dimensions of environmental protection;
- To explore and develop a conceptual framework on the environmental awareness of young people which would underpin policies and programs for young people.

The specific questions are:

- What are the environmental understandings, attitudes, values, skills and behaviours of NSW primary and secondary school students?
- How are these understandings, attitudes, values, skills and behaviours developed, originated and expressed?
- How do these understandings, attitudes, values, skills and behaviours differ according to age, gender, rural/urban area, socio-economic area, sub-cultural group and English speaking background?
- How do family influences inform young people's attitudes towards the environment?

Method

Focus Groups Focus groups were conducted in three primary and five high schools in Sydney throughout mid 1999. In the primary schools, the focus groups consisted of one group of eight Year 3 students and another group of eight Year 6 students. For the high schools, the focus groups were made up of one group of eight Year 8 students and another group of Year 11 students. The purpose of the focus groups was to collect qualitative data that would help shape the questions of the main questionnaire.

Reference Committee A draft questionnaire was constructed on the basis of the qualitative findings of the focus group research. This draft questionnaire went through a lengthy consultation process with the research industry partners on the steering committee as well as with the members of our reference committee that included internationally respected environmental educators (see Appendix A for a list of the reference committee members). A statistician, Dr Petocz of the University of Technology Sydney, was also involved in this process of consultation. The content validity and construct validity of the questionnaire was refined as a result of this rigorous consultative process.

Pilot Study The revised questionnaire was then piloted in two primary and two high schools. Three of these schools were located in regional NSW. The remaining school was located in the western suburbs of Sydney. Students completed the questionnaire in 45 minute, mixed gender focus groups of eight students per session. This setting allowed the students to offer feedback both during and after they completed the questionnaire. Students provided an invaluable and honest critique on both the content and construction of the questionnaire. The questionnaire was refined again on the basis of this advice.

Sampling method 70 schools throughout New South Wales were selected using a random systematic sampling method. This involved the random selection of seven school districts in New South Wales. The districts selected were:

- Liverpool
- Mt Druitt
- Ryde
- Newcastle
- Batemans Bay
- Clarence/Coffs Harbour
- Dubbo

Five high schools and five primary schools were then systematically selected from each district. Using the Department of Education and Training's *Guide to Public Schools* (1998) every fourth high school was selected beginning with the fourth. The same method was employed to select the primary schools.

Conduct of the survey The principal of each school selected was then contacted by phone to ask permission to send out the questionnaire to their school. If the principal agreed then an information letter on the project and our department ethics

approval was immediately faxed to them. A package containing the questionnaires, a teacher survey, teacher information sheet and a letter to parents seeking their informed consent was mailed to the school. This process occurred on May 11, 12, 15 and 16 2000.

Survey structure There were two questionnaires used in the survey. One for the high school students that covered different social concerns in questions 1-3 and more difficult knowledge questions than the primary school questionnaire which was also set out in a larger font and line spacing.

The first three major questions asked their children to nominate their major concerns in the local, national and global areas. Students chose from a range of social and environmental issues that were nominated by the students in the focus groups.

Question four attempted to measure young peoples' level of optimism about the future state of the local, national and global environments. Question five examined young peoples' locus of control in regards to environmental issues. Question six asked the respondents to nominate where they learn about the environment. Question seven comprised environmental knowledge question that were developed using curriculum documents and other major environmental surveys, for example the National Environmental Education and Training Foundation survey in the USA (1999) and the EPA *Who Cares* survey in NSW (1994). Question eight asked young people to indicate the importance of environmental issues to them and question nine required them to define the term environment.

Outcomes of the Study

Unfortunately I cannot include this part of the paper as the industry partners in this research do not wish the findings to be released into the public domain until we have released our major report in April 2001. Initial approval was given by the industry partners to present this paper but this was withdrawn when they read the completed paper.

Conclusion

The first line of analysis of the quantitative data in this study has unearthed findings that are similar in some respects to other research in this field. It also has revealed interesting data that will need to be investigated using more fine-grained methods. This includes the position of environmental concerns in the values of young people, important sources of their environmental awareness, conceptions of the environment, locus of control in regards to the environment and their optimism concerning the future state of the environment. This investigation will occur with the next part of this project, the qualitative research of the school and community studies.

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Appendix A Reference Committee Members

- **Associate Professor Arjen Wals** (Netherlands)- a prolific writer, teacher and lecturer in the field of environmental education - author of *Pollution Stinks* .
- **Dr William Scott** (UK) - another leader in the field of environmental education, editor of Environmental Education

Research.

- **Dr Phillip Payne** (Australia)- at the forefront of post-modernist theories and action research in environmental education.

- **Professor Lyn Yates** (Australia)- a leader of research in the sociology of education. Her current research, the 12-18 project, is an important longitudinal study examining the impact of class and gender on the life choices of a group of Australian teenagers.
- **Peter Van Marion** (Norway)- Norway's pre-eminent environmental education curriculum developer.

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